Amendments to the Claims

This listing of claims will replace all prior versions, all listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A ~~Feedforward~~ feed-forward equalizer (FFE) of a communication system comprising:

an adaptive filter for filtering a receiving signal according to a transfer function including a plurality of ~~adjustable constants~~ parameters to eliminate a pre-cursor inter-symbol interference (pre-ISI) of the receiving signal, the adaptive filter comprising:

a plurality of delay elements for generating a plurality of delay signals according to the receiving signal;

a plurality of multiplier for respectively multiplying the receiving signal and the delay signals by the parameters and thereby generating a plurality of multiplied signals, wherein at least one of the parameters remains fixed while the other parameters are adjusted to converged values, so as to accelerate the convergence of the communication system; and

a summing circuit for summing the multiplied signals to generate a filtered receiving signal; and

a digital auto-gain controller (DAGC) coupled to the adaptive filter for adjusting the magnitude of the filtered receiving signal according to the transfer function;

wherein a center multiplier among the multipliers is designated to multiply one of the delay signals by the fixed parameter to generate one of the multiplied signals.

~~wherein the adjustable constants include a main-tap and the value of the main-tap is predetermined.~~

Claim 2 (Currently Amended): The FFE as claimed in claim 1, wherein at least two of the

parameters remain fixed, the center multiplier and an adjacent multiplier neighboring the center multiplier respectively multiply two of the delay signals by the two fixed parameters to generate two of the multiplied signals ~~the adjustable constants further include a first adjustable constant adjacent to the main tap and the value of the first adjustable constant is predetermined~~.

Claim 3 (Currently Amended): The FFE as claimed in claim 1, wherein the fixed parameter utilized by the center multiplier is ~~main tapermined to be~~ 1.

Claim 4 (Currently Amended): The FFE as claimed in claim 1, wherein the transfer function is $C_0Z^3+C_1Z^2+C_2Z^1+C_3+C_4Z^1+C_5Z^2+C_6Z^3$, wherein C_0, C_1, C_2, C_3, C_4, C_5, and C_6 are ~~adjustable constants~~ the parameters, Z [[is]] represents a delay element among the delay elements, and C_3 is the fixed parameter utilized by the center multiplier ~~main tap~~.

Claim 5 (Currently Amended): The FFE as claimed in claim 4, wherein C_3 is ~~predetermined to be~~ 1.

Claim 6 (Currently Amended): The FFE as claimed in claim 4, wherein C_4 is ~~predetermined to be~~ 0.5.

Claim 7 (Currently Amended): A transceiver of a communication system, comprising:

a front end receiver for receiving a receiving signal and converting the receiving signal to a first signal with a pre-cursor component and a post-cursor component;

a noise canceller coupled to the front end receiver [[10]] for generating a second signal through eliminating the noise of the first signal;

a Feed-Forward Equalizer (FFE) coupled to the noise canceller for generating a third

signal through eliminating the pre-cursor component in the second signal according to a transfer function including a plurality of ~~adjustable constants~~ parameters, at least one of the parameters remains fixed while the other parameters are adjusted to converged values, so as to accelerate the convergence of the communication system, the FFE comprising: ~~wherein the adjustable constants includes a main tap and the value of the main tap is predetermined~~

an adaptive filter for filtering a receiving signal according to the transfer function to eliminate the pre-cursor component, comprising:

a plurality of delay elements for generating a plurality of delay signals according to the receiving signal;

a plurality of multiplier for respectively multiplying the receiving signal and the delay signals by the parameters and thereby generating a plurality of multiplied signals, wherein a center multiplier among the multipliers is designated to multiply one of the delay signals by the fixed parameter to generate one of the multiplied signals; and

a summing circuit for summing the multiplied signals to generate a filtered receiving signal; and

a digital auto-gain controller (DAGC) coupled to the adaptive filter for adjusting the magnitude of the filtered receiving signal according to the transfer function and thereby generating the third signal; and

a decoding system coupled to the FFE for decoding the third signal and eliminating the post-cursor component in the third signal.

Claim 8 (Currently Amended): The transceiver as claimed in claim 7, wherein at least two of the parameters remain fixed, the center multiplier and an adjacent multiplier neighboring the center multiplier respectively multiply two of the delay signals by the two fixed parameters to generate two of the multiplied signals ~~the adjustable constants further includes a first adjustable constant adjacent to the main tap and the~~

~~value of the first adjustable constant is predetermined~~.

Claim 9 (Currently Amended): The transceiver as claimed in claim 7, wherein the fixed parameter utilized by the center multiplier is ~~main tap is predetermined to be~~ 1.

Claim 10 (Cancelled)

Claim 11 (Currently Amended): The transceiver as claimed in claim 7, wherein the transfer function is $C_0Z^3+C_1Z^2+C_2Z^1+C_3+C_4Z^{-1}+C_5Z^{-2}+C_6Z^{-3}$, wherein C_0, C_1, C_2, C_3, C_4, C_5, and C_6 are ~~constants~~ the parameters, Z [[is]] represents a delay element among the delay elements, and C_3 is the fixed parameter utilized by the center multiplier ~~main tap~~.

Claim 12 (Currently Amended): The transceiver as claimed in claim 11, wherein C_3 is ~~predetermined to be~~ 1.

Claim 13 (Currently Amended): The transceiver as claimed in claim 12, wherein C_4 is ~~predetermined to be~~ 0.5.

Claim 14 (New): A feed-forward equalizer (FFE) of a communication system comprising:

a multi-tap filter for filtering a receiving signal, comprising:

a plurality of delay elements coupled in series for generating a plurality of delay signals according to the receiving signal, each of the delay signals corresponding to a different delay, one of the delay signals corresponding to a middle delay among the different delays;

a plurality of multiplier for respectively multiplying the receiving signal and the delay signals by a plurality of parameters and thereby generating a plurality of multiplied signals, wherein at least one of the parameters remains fixed while

the other parameters are adjusted to converged values, so as to accelerate the convergence of the communication system; and

a summing circuit for summing the multiplied signals to generate a filtered receiving signal; and

a digital auto-gain controller (DAGC) coupled to the adaptive filter for adjusting the magnitude of the filtered receiving signal according to the parameters.

Claim 15 (New): The FFE of claim 14, wherein at least two of the parameters remain fixed while the other parameters are adjusted.

Claim 16 (New): The FFE of claim 15, wherein two of the multipliers respectively multiply two of the delay signals by the two fixed parameters.

Claim 17 (New): The FFE of claim 16, wherein two of the multipliers respectively multiply two of the delay signals by the two fixed parameters.

Claim 18 (New): The FFE of claim 16, wherein the two multipliers utilizing the two fixed parameters are coupled adjacently.

Claim 19 (New): The FFE of claim 14, wherein the multipliers are coupled in parallel sequentially and a center multiplier among the multipliers is designated to multiply the delay signal with the middle delay by the fixed parameter to generate one of the multiplied signals.

Claim 20 (New): The FFE of claim 19, wherein at least two of the parameters remain fixed, the center multiplier and an adjacent multiplier neighboring the center multiplier respectively are designated to multiply two of the delay signals by the two fixed parameters to generate two of the multiplied signals.